NEW CLAIMS

1. Device for the capacitive position finding of a target object, particularly for performing the method according to one of the claims 14 to 18,
having a plurality of capacitive probes (20, 30, 40) distributed over a detection area (16) in which a position of the target object (12) is to be determined,
characterized in that
a dependence of the probe voltages on the spacing of the target object (12) from the given capacitive probe (20, 30, 40) is evaluatable for position determination,
that the probes (20, 30, 40) are in each case connected across coupling capacitances (22, 32, 42) to a voltage supply (14) and can be supplied with a supply voltage, the capacitances (24, 34, 44) of probes (20, 30, 40) to the environment together with the coupling capacitances (22, 32, 42) in each case forming a capacitive voltage divider with the probe voltages as mean voltages and
that an evaluating device (50) connected to the probes (20, 30, 40) is provided and which enables the probe voltages to be processed to an output signal (52), which is a measure for the position of the target object (12) to be found.

2. Device according to claim 1,
characterized in that
the coupling capacitances (22, 32, 42) are at least partly constructed as discreet capacitors (23, 33, 43).

3. Device according to claims 1 or 2,
characterized in that
at least one of the probes (20, 30, 40) is constructed as a reference probe.

4. Device according to one of the claims 1 to 3,
characterized in that
the probes (20, 30, 40) are distributed over a three-dimensional detection area (16).

5. Device according to one of the claims 1 to 4,
characterized in that
the evaluating device (50) for each probe (20, 30, 40) has a rectifier (26, 36, 46).

6. Device according to one of the claims 1 to 5,
characterized in that
the evaluating device (50) has a central processing unit, particularly a microprocessor (54).

7. Device according to claim 6,
characterized in that
the evaluating unit (50) has a multiplexer (56) by means of which the probe signals of at least two probes (20, 30, 40) can be supplied to the central processing unit.

8. Device according to one of the claims 1 to 7,
characterized in that
the evaluating device (50) has a signal processor for pre-processing the analog probe signals.

9. Device according to one of the claims 1 to 8, characterized in that
the plurality of capacitive probes (20, 30, 40) which, in a first area, particularly on one side (71), of a support (70) are distributed over the detection area (16) in which the position of the target object (12) is to be found, that for forming the coupling capacitances (22, 32, 42) in a second area, particularly on a facing side (73), of the support (70) there is at least one coupling electrode (80) by means of which a supply voltage can be coupled onto the probes (20, 30, 40) and
that the support (70) for forming a coupling layer (72) is at least partly made from a dielectric material.

10. Device according to claim 9, characterized in that
the support (70) is constructed as a more particularly flexible printed circuit board.

11. Device according to one of the claims 9 or 10, characterized in that
at least parts (90) of evaluating electronics are placed on the support (70).

12. Device according to one of the claims 9 to 11, characterized in that
the coupling electrode (80) is constructed as a unitary potential surface, particularly as a continuous, metallic layer.

13. Device according to one of the claims 9 to 12, characterized in that
further metal layers (86) are provided for shielding or receiving circuit components on or in support (70).

14. Method for capacitive position finding of a target object, in which a plurality of capacitive probes (20, 30, 40) is arranged over a detection area (16) in which a position of the target object (12) is to be determined, characterized in that
the probe voltages are dependent on the spacing of the target object from the given probe and are evaluated for determining the position of the target object,
that the probes (20, 30, 40) are in each case supplied with a supply voltage across coupling capacitances (22, 32 42), capacitive voltage dividers with the probe voltages as mean voltages being formed through the coupling capacitances (22, 32, 42) and by the capacitances (24, 34, 44) of probes (20, 30, 40) to the environment varying as a result of a position change of the target object (12) to be detected and
that the probe voltages are processed with an evaluating device (50) to an output signal, which is a measure of the position of the target object (12) to be found.

15. Method according to claim 14, characterized in that
a discreet object, a liquid or a bulk material is detected.

16. Method according to claim 14 or 15, characterized in that
all the coupling capacitances (22, 32, 42) are supplied with the same supply voltage with a given frequency.

17. Method according to one of the claims 14 to 16, characterized in that the quotients of several probe voltages are formed for evaluating the probe signals.

18. Method according to one of the claims 14 to 17, characterized in that the signal voltage of at least one reference probe is taken into account during evaluation.